NOTES AND ABSTRACTS

NOTE REGARDING PREVIOUS USE OF CORRELATION PERIODOGRAM BY CLAYTON

Mr. H. H. Clayton has called my attention to the fact that he devised the method which I published and used in the June MONTHLY WEATHER REVIEW, in connection with his investigations of Argentine weather and the sun spots in 1917. Later Abbot used his method. I am sorry that I overlooked this use of the method. His papers gave no hint of a new method in the titles, otherwise they would have been studied instead of the synopses published in his book "World Weather." It may be added that the evidences which he brought out in these papers regarding relationships appear much stronger when seen in their original form than when abridged and should be carefully studied by all students of the subject.

The equations which I have derived in the later part of the paper are not included in Mr. Clayton's work, as is true also of the discussion of the advantages of the method.

The references follow: Smithsonian Miscellaneous Collection, H. H. Clayton, vol. **68**, No. 3, and **71**, No. 3; C. G. Abbot, vol. **69**, No. 6.—*Dinsmore Alter.*

NILE FLOOD STUDIES

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In Das Wetter, August, 1926, I published a little study "Nilflut und der Folgewinter in Deutschland (Nile flood and the following winter in Germany), in which I found an inverse relation of the Nile at Assuan from July–October with the following winter temperatures in Germany. A few months later E. W. Bliss published a very interesting study "The Nile Flood and World Weather," but the influence of the Nile upon the following winter in Germany is only given by a single correlation; therefore further research upon these interesting relations seemed to be necessary. For this purpose I used in correlation the Nile [1] (VII–X) at Assuan with—

(1) The following winter temperatures at German stations for the 50-year period 1874–1923.

(2) The autumn temperatures in eastern United States.

(3) The North Atlantic circulation (Azores–Iceland) (XII–II).

(4) The Argentine pressure (one quarter earlier).

DATA

Normal flood discharge, Nile at Assuan, July to October, 678×10^8 cu. m.

(1) Winter temperatures for the following 10 stations combined: Koenigsberg, Berlin, Hamburg, Breslau, Leipzig, Münster, Bamberg, Frankfurt, München, and Karlsruhe.[2]

(2) Autumn temperatures at Cincinnati, Milwaukee, St. Louis, New Orleans, and New York combined.

(3) North Atlantic circulation, Punta Delgada minus Iceland $\frac{\text{(Stykkisholm + Berufjord)}}{2}$.

(4) Argentine pressure $\frac{\text{(Cordoba + Buenos Aires)}}{2}$ April to June.

Deviations from the mean, 1874–1923

Year	Before Nile, Argentine pressure, IV–VI	Nile, VII–X	After Nile: Temperature: U. S. A., IX–XI	After Nile: Temperature: Germany, XII–II	Circulation, Azores–Iceland, XI–II
	mm.	*R. N.*[3]	*°F.*	*°C.*	*mm.*
1874	1.3	8	−0.1	−1.6	−6
1875	0.2	4	−3.5	−1.6	−2
1876	0.3	4	−3.1	1.9	0
1877	−0.5	−4	−1.5	0.9	1
1878	−0.3	7	0.0	−1.0	−10
1879	0.1	6	0.5	−3.5	−3
1880	−0.3	2	−2.2	−0.7	−17
1881	−0.2	0	2.7	1.0	5
1882	0.4	−2	1.3	0.7	3
1883	−0.7	3	−0.2	2.2	3
1884	0.1	−2	1.7	0.5	−1
1885	0.2	2	−1.7	−1.6	−3
1886	0.3	0	−0.2	−1.2	4
1887	−0.5	6	−1.9	−1.8	−11
1888	−0.4	−4	−2.1	−1.6	3
1889	0.3	2	−2.4	−0.6	6
1890	0.6	5	0.2	−3.5	−2
1891	−0.4	2	−0.7	0.1	−1
1892	2.4	7	−2.1	−2.7	−6
1893	0.7	2	−0.6	0.1	11
1894	1.5	8	−0.4	−3.1	−13
1895	0.8	6	−0.9	−0.4	−2
1896	1.5	4	−1.0	−0.8	0
1897	−0.2	0	2.5	1.6	5
1898	−0.9	4	−0.3	2.6	−4
1899	−0.6	−6	2.0	−0.5	−4
1900	0.7	0	2.3	−1.6	−4
1901	−0.8	−1	−0.3	1.1	−6
1902	−1.6	−6	1.9	0.6	5
1903	−0.2	0	−1.2	−0.1	6
1904	0.2	−4	0.3	0.7	1
1905	−1.0	−6	0.3	1.1	7
1906	−0.6	−1	1.0	−1.2	5
1907	0.3	−7	−1.2	0.2	5
1908	0.8	2	1.5	−1.6	4
1909	1.3	2	1.1	2.3	8
1910	0.3	−1	−0.1	1.1	2
1911	0.3	−3	−0.6	1.0	−4
1912	0.2	−5	1.4	1.5	5
1913	−0.6	−12	1.0	0.9	3
1914	−1.5	−3	1.3	1.7	5
1915	−1.4	−7	2.2	2.8	3
1916	0.2	4	−0.2	−1.4	−12
1917	1.2	2	−3.4	0.2	−6
1918	−0.9	−5	−0.6	1.4	−4
1919	−2.0	−3	1.7	2.0	10
1920	−0.2	−3	1.4	2.0	1
1921	−0.3	−4	2.2	−1.2	10
1922	0.2	−1	2.4	1.5	----------
1923	−0.1	−1	−0.3	−2.6	----------

[3] 1 R. N.=33.10[8] cbm., Assuan, VII–X; R. N.=relative number; 1 R. N.=~5%.

CORRELATIONS

Argentine pressure IV–V and Nile one quarter later	$r = 0.57$
Autumn temperature in eastern United States	$r = -0.40$
Following German winter	$r = -0.50$
Circulation in winter (North Atlantic)	$r = -0.49$

All these correlations are of importance for weather forecasting; those of the Argentine pressure from April–June with the following Nile is the best relation found until now for Nile flood forecasting.

The Nile shows also an inverse relation with autumn temperature in eastern United States and gives with the result of my other study [1] a good combination for autumn temperatures in the United States. Germany and western Europe winter temperatures are very well inversely related with the Nile second quarter earlier.

[1] The Nile Flood and World Weather, E. W. Bliss Memoirs, Royal Met. Soc., vol. 1, No. 5, London, 1926.

[2] Baur in Grundlagen einer Vierteljahrstemperaturvorhersage. Braunschweig, 1926.

[1] MONTHLY WEATHER REVIEW 54 : 299.